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ABSTRACT

An overview of the National Longitudinal Study of the High School Class of 1972 (NLS) is provided. Section one describes the research design for the base-year and first through third followup surveys. Section two summarizes findings from data analyses of the first followup and base-year, completed before September 1975. The findings are presented according to six basic classification variables: sex; high school curriculum; race; geographic region; ability; and socioeconomic status. The relationship of these variables to plan fulfillment is examined; that is, spring 1972 educational and employment plans are compared to October 1972 activities, and October 1972 activities are compared to October 1973 activities. Race by sex differences in educational attainment are examined by comparing three predictor variables--socioeconomic status, aptitude, and high school class rank. Changes in self-concept and control of environment, resulting from unfulfilled plans, are also discussed. The final section raises nineteen significant questions for the fall 1976 followup and subsequent studies. (CP)

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National Longitudinal Study of the High School Class of 1972: A Summary of the Merged Findings from Analyses by RTI of the First Follow-Up and Preceding Data

NOTE: This is a working summary of activity to date on the National Longitudinal Study, a project of the National Center for Education Statistics USHEW. Also included is a summary of findings thus far from analyses of data following the First Follow-Up Survey of the class of 1972. These analyses are still in process; this statement is tentative. Consequently, nothing herein should be quoted or cited until formal publication of the material by NCES or the contractor

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National Longitudinal Study of the High School Class of 1972: A Summary of the Merged Findings from Analyses by RTI of the First Follow-Up and Preceding Data

I. AN OVERVIEW OF THE NLS

A. Research Design: The Base-Year Survey

The full-scale survey was initiated in the spring of 1972, following a rather extensive period of planning that included a survey conducted by NCES in 1968 to determine the specific data needs of educational policymakers and researchers, various meetings with potential data users, and finally the sample design and field test of survey instruments and procedures. A national probability sample of about 18,000 seniors from over 1,000 public, private, and church-affiliated high schools participated in the Base-Year Survey.

The sample design may be described as a deeply stratified two-stage probability sample with schools as first-stage sampling units and students as second-stage units. The population consisted of all 1972 twelfth graders enrolled in all public and private schools in the 50 States and the District of Columbia. The first-stage sampling frame was constructed from computerized school files maintained by the Office of Education and by the National Catholic Education Association.

The school sampling frame was stratified into 600 final strata based on the following variables:

- type of control (public or nonpublic)
- geographic region (Northeast, North Central, South, and West)
- grade 12 enrollment (less than 300, 300 to 599, and 600 or more)
- proximity to institutions of higher learning
- percent minority group enrollment
- income level of the community
- degree of urbanization.

In order to increase the number of disadvantaged students in the sample, schools located in low-income areas and schools with high proportions of minority group enrollments were sampled at approximately twice the sampling rate used for the remaining schools. Schools in the smallest grade 12 enrollment stratum (less than 300 seniors) were selected with probabilities proportional to their estimated numbers of senior students and without replacement. Schools in the remaining strata

were selected with equal probabilities and without replacement. Within each final stratum, four schools were selected initially and then two of the four were randomly selected and designated as the primary selections. The other two schools were retained as back-up or substitute selections, used in the sample only if one or both of the primary schools did not cooperate. Samples of 18 students per school were selected and five additional students were selected as alternates. The students were sampled with equal probabilities and without replacement, within schools.

The sample design involved 1,200 primary sample schools and 21,600 students (18 per school). Of the 1,200 primary sample schools, 949 participated in the Base-Year survey, 21 had no senior students enrolled and 230 either refused to participate or could not participate due to the fact that the request was received too late in the school year. However, 121 back-up schools participated bringing the total number of participating base-year schools to 1,070 and a total of approximately 18,000 respondents who provided base-year information.

Due to the fact that some schools could not respond in the Base-Year survey, further attempts were made to secure participation of the 230 nonparticipant primary sample schools. This "resurvey" activity, performed during the First Follow-Up survey, involved securing school cooperation and selecting samples of up to 18 former students (1972 seniors) per school. The "resurvey" activities were successful in 204 of the 230 primary sample schools; thus, students from 1,153 of the 1,200 primary sample schools were included in the First Follow-Up survey. Adding 131 back-up schools and 16 sample augmentation schools increased the total number of participant schools to 1,300. Respondents to the First Follow-Up returned 21,350 First Follow-Up Questionnaires.

Each student in the sample in the spring of 1972 was asked to complete a Student Questionnaire containing 104 questions distributed over 11 major sections. The Base-Year Student Questionnaire dealt with factors related to the student's personal-family background, educational and work experiences, plans, aspirations, attitudes, and opinions. In addition to the Student Questionnaire, each student was asked to take a 69-minute Test Battery measuring both verbal and nonverbal ability, and consisting of six subtests.

Base-year data were also obtained from a student's School Record Information Form (SRIF). Items on the SRIF pertained to the student's

high school curriculum, grade point average, credit earned in major courses, and, if applicable, his or her position in ability groupings, participation in remedial programs, involvement in certain federally supported programs, and scores on nationally administered college admissions tests.

The administration of a School Questionnaire and a Counselor Questionnaire to the appropriate school staff completed the base-year data collection from each participating high school. These two instruments were designed to collect detailed data on teacher, school, and counselor characteristics.

B. Research Design: The First Follow-Up Survey

The first step in data collection for the First Follow-Up involved an extensive tracing operation to update name and address files. The major mailout of over 22,000 First Follow-Up Questionnaires to the last known addresses of potential respondents was made on 23-24 October 1973. This was followed by a planned sequence of reminder postcards, additional questionnaire mailings, and reminder mailgrams to non-respondents. Active mail return efforts continued through December 1973; by early January 1974, the questionnaire return rate by mail was 62 percent.

The names and addressed of over 8,000 sample members who failed to mail back their questionnaires were then turned over to the Bureau of the Census for personal interview in accordance with a Bureau contract with the U. S. Office of Education. This personal interview phase of first follow-up data collection continued through March 1974, at which time the overall response rate had been increased to 94 percent.

Two forms (A and B) of the First Follow-Up Questionnaire were developed and designed for self-administration by the student; these were extensively field-tested. Form A of the First Follow-Up Questionnaire subsequently was mailed to each sample member who responded to the Base-Year Questionnaire. Seniors from the high school class of 1972 who were unable to participate in the Base-Year survey (usually because of time and scheduling considerations) were mailed Form B of the questionnaire. Questions 1-85 were identical on both questionnaire forms, and dealt with information concerning the respondent's activity state (e.g., education, work, etc.) in October 1972 and October 1973; his or her socioeconomic status; work and educational experiences since leaving

high school; and future educational and career plans, aspirations, and expectations. Form B of the First Follow-Up Questionnaire contained additional questions to take the place of missing base-year information.

C. Research Design: The Second and Third Follow-Up Surveys

The Second Follow-Up survey began in October 1974. A single form of the Second Follow-Up Questionnaire was designed for self-administration by mail. As in the First Follow-Up, sample members who failed to return their questionnaires were interviewed. The questionnaire also is similar in content to that of the First Follow-Up, except that activity states are referenced to October 1974 and a variety of new items on community activities and values are included such as participation in voluntary associations, voting behavior, quality of life indicators, and consumer behavior. Thus, the Second Follow-Up reflected an expanded interest in the transition of the respondents from vocational, technical, junior, and community colleges either into the labor force or into further education, and in the transition into more general adult roles as citizen, consumer, spouse, and parent.

It is anticipated that the Third Follow-Up survey will begin in October 1976, exactly two years after the last follow-up and approximately four and one-half years after the original base-year survey. At this point in time, most students who went on to college and continued on schedule presumably would have graduated and either entered the labor force or postgraduate training programs. Those who did not enter formal postsecondary education programs would have had three to four years of work experience.

In the most general terms, the primary purpose of the study is to discover what happens to young adults after they leave high school, as reflected in their subsequent educational and vocational activities, attitudes, and aspirations, and to relate this information back to earlier educational experiences and personal or biographical attributes. The ultimate goal of the program is a better understanding of the growth of students in the American educational system, and the factors associated with individual educational and career outcomes. Two major consequences of such information are envisioned: (1) the planning and implementation by educational policymakers of programs to enhance educational opportunity and achievement and to upgrade occupational attainment; and (2) the

extension of current knowledge of human development for the communities of educators and educational researchers in general.

The policy orientation then is fairly clear; the potential uses for the information being gathered are many. The study should provide substantive data for the review and reformulation of the diverse federal policies and programs within the Office of Education, where various units have contributed to its formation and development, and contine to influence its course. These units include the National Center for Education Statistics; the Office of Planning, Budgeting, and Evaluation; the Bureau of Postsecondary Education; and the Bureau of Occupational and Adult Education. The potential uses for the information to be accumulated, however, exceed the interests of any particular group; the broad data base and succession of observed effects will serve many interests of other governmental agencies, the educational research community, and the education community in general.

Basic analyses of how different subgroups of the population fare over the transition from high school to work or career, with particular attention to instances where programs of federal interest or support have touched their lives, are under preparation by RTI; other special analyses of data may be conducted by the OE units involved.

These data will also meet a widespread need of the educational community--researchers and administrators at the elementary, secondary, and postsecondary levels--for information on the "flow" of young adults through the postsecondary occupational-educational system. They will provide insight for identifying and understanding the major branching or decision points that affect the educational and life patterns in the immediate postsecondary period. Significant linkages or path choices can be traced, estimates of the associated transition probabilities provided, and insight afforded into the relative importance of the factors that determine these transition probabilities.

II. SUMMARY OF FINDINGS FROM ANALYSES COMPLETED TO DATE (1 SEPTEMBER 1975) OF FIRST FOLLOW-UP SURVEY

(Note: Six basic classification variables have been defined that currently are being used alone and jointly to group respondents into meaningful subpopulations. These are sex, high school curriculum, race, geographic region, ability, and background (SES). Most of the findings reported in the following sections employ these variables.

A. Selected Preliminary Findings Regarding Fall 1973 Status

1. College Attendance

The difference between black females and white females taking academic courses in two- or four-year colleges is much smaller (37 percent versus 40 percent, respectively) than the corresponding difference for black males and white males (32 percent versus 46 percent, respectively).

The overall college attendance rates for blacks, as contrasted to whites, is lower because of a higher concentration on blacks in the lower SES and ability levels. However, within each of the three ability levels, blacks have a significantly higher college attendance rate than whites. The contrasts are 25 percent versus 14 percent, 54 percent versus 38 percent, and 83 percent versus 70 percent for the low, middle, and high ability groups, respectively, with the first percentage in the contrast representing black attendance rates. The same trend is evident for black and white differences for the low and middle SES categories. These figures do not yet demonstrate equality of educational opportunity since a disproportionate number of blacks may be attending postsecondary schools of low quality.

2. Homemaking

There was a strong relationship between both ability and SES and the probability of a female being a homemaker. High-ability and high-SES females had substantially lower probabilities of being a homemaker (16 and 15 percent, respectively) than low-ability and low-SES females (38 and 40 percent, respectively).

3. Unemployment

Approximately 9 percent of the respondents to the First Follow-Up were on temporary layoff, looking for work, or waiting to report to work in the fall of 1973. The sex difference in respect to unemployment was small (less than 1 percent). However, there were large differences among ability groups, SES groups, and racial groups. The low-ability group had 13 percent in this category as contrasted to a percentage of less than 5 percent for the high-ability group. SES showed the same relationship as ability, with over 12 percent of the low-SES respondents being unemployed and only slightly over 5 percent of the high-SES respondents being unemployed. Blacks had a 16 percent unemployment rate, while whites had a 7 percent unemployment rate. Some of these differences

could be due to the fact that high-ability and high-SES respondents are out of the labor market because they are going to school. However, these percentages are somewhat disturbing since virtually all of these sample members are high school graduates and presumably should have developed the skills necessary for gainful employment. Problems in our economy, of course, are also playing a significant role here. The people that suffer most in a faltering economy are the young and the inexperienced.

4. Educational Plans

Approximately 74 percent of the seniors indicated in the fall of 1973 that they expected to continue their education. Educational expectations were strongly related to ability, SES, high school program, sex, and race. Seniors who could be categorized as low-aptitude, low-SES, female, or in a vocational-technical program had lower educational expectations than students who could be categorized as high-aptitude, high-SES, male, or in an academic curriculum. It is interesting to note that over 18 percent of the low-ability students actually expected to get a B.A. or higher degree, an expectation that could prove to be unrealistic. In fact, another 42 percent expected to go either to a two-year college or vocational-technical school.

Another interesting finding is that both black females and black males had higher expectations in regard to postsecondary education than their counterparts, white females and white males. However, more blacks expected to go to a two-year college as compared to whites. Approximately 90 percent of middle-ability blacks expected to go beyond high school, as contrasted to 72 percent of middle-ability whites. Over 28 percent of the middle-ability blacks expected to get a Master's or Ph.D. degree. Seventy-six percent of the low-SES blacks expected to go beyond high school, as contrasted to 52 percent of the low-SES whites. Whether or not these expectations are realistic will be determined from analyses of later follow-ups.

B. Spring 1972 Plans versus October 1972 Activities

Eighty-two percent of respondents who had planned in the spring of 1972 to go to a four-year college were enrolled in that status in October of 1972. Over 9 percent were enrolled part or full time in a two-year

college or vocational-technical school, and less than 5 percent of this group ended up working full time.

The plans for those seniors who planned to go to a two-year college or a vocational-technical school had a much lower probability of being fulfilled. Only 63 percent of those planning to go to a two-year college actually went and only 47 percent of those planning to go to a vocational-technical school actually went by October 1972. A substantial proportion (40 percent) of those planning to work full time did not do so, but got married (if female), went in the military, or went to school.

Over 13 percent of the seniors who were planning to work full time actually were in school in October 1972. However, only a little over 2 percent of this group actually went to a four-year college full time. For each planning group, we examined the characteristics of those whose plans were fulfilled versus those whose plans were not fulfilled. What roles do high school programs, the counseling process, ability, and financial status play in matching plans to outcomes? What changes in self-concept, aspirations, expectations, and goals take place as a result of these unfulfilled plans?

1. Relationship of Ability to Plan Fulfillment

The plans of low-ability respondents were considerably less fulfilled than the plans of high-ability respondents. Only 57 percent of low-ability seniors who planned to go to a four-year college actually were enrolled as such in October 1972, while 90 percent of high-ability students fulfilled these same plans. We might have expected the plans of those low-ability respondents who wanted to go to a two-year college or vocational-technical school to have a reasonable probability of being fulfilled. However, this is not the case, as only 53 percent of those planning to attend a two-year college actually did so, and only 35 percent of those planning to attend a vocational-technical school actually did. The corresponding percentages for the high-ability group were 66 and 56 percent, respectively.

2. Relationship of Socioeconomic Status to Plan Fulfillment

The correspondence between plans and activities for each of the three SES levels followed the same trend as the ability results discussed previously. For high-SES respondents, 90 percent of those planning to go to a four-year college fulfilled these plans, while

the corresponding percentages for the middle- and low-SES groups were 80 and 70 percent, respectively. The same pattern of differences between the three SES groups was found for those planning to attend a two-year college or a vocational-technical school. There were no major differences, however, among the three SES groups in regard to fulfilling work plans.

3. Relationship of Race to Plan Fulfillment

Blacks were less likely to fulfill their plans compared to whites. Seventy percent of blacks planning to go to a four-year college and 38 percent of blacks planning to work full time fulfilled their plans. The corresponding percentages for whites were 85 and 64 percent, a considerable difference. Blacks were also substantially less likely than whites to fulfill their plans for attending either two-year colleges or vocational-technical schools. Twenty-nine percent of blacks who planned to work full time were actually doing something else besides either working or studying.

4. Relationship of Sex to Plan Fulfillment

Sex differences in plan fulfillment were not nearly as great as differences among racial, ability, or SES groups. Females were more likely than males to fulfill their plans for vocational-technical training and somewhat less likely to fulfill their plans for working full time in October 1972.

5. Relationship of High School Program to Plan Fulfillment

Respondents were classified by high school curriculum as follows: academic, vocational, or general. Students who were in high school academic programs were most likely to fulfill their four-year college plans (86 percent), while vocational students were least likely to fulfill their four-year college plans (57 percent). Academic students were most likely to fulfill their plans for attending vocational-technical schools (60 percent), and general program students were least likely (39 percent). Vocational students were, however, more likely to fulfill their plans for working full time (64 percent), and academic students were least likely (53 percent) to fulfill their work plans.

It must be kept in mind, however, that the academic programs have a relatively high proportion of high-SES and high-ability students and the vocational programs have a relatively high proportion

of low-SES and low-ability students. We have just seen that these characteristics are significantly related to plan fulfillment. Before any final conclusions are drawn with respect to program influences on planning, one would have to adjust for background differences such as these.

5. Relationship of Region to Plan Fulfillment

There were regional (Northeast, North Central, South, and West) differences in regard to fulfilling short-term occupational and educational career plans. Respondents residing in the Northeast were most likely to fulfill their four-year college plans, and respondents residing in the South were least likely to fulfill these plans. Seniors planning to work full time were more likely to fulfill these plans if they were seniors in the Northeast. They were least likely to fulfill their work plans if they finished high school in the West. These differences in the fulfillment of plans across the four regions could be due to a number of factors. First, there are clear ability and SES differences among these regions, and these two factors, as we have seen, are strongly related to the fulfillment of plans. There are also regional differences in economic conditions, industrial development patterns, and the availability and type of postsecondary institutions, any or all of which could account for these findings.

C. October 1972 Activities versus October 1973 Activities

Overall, 80 percent of those students enrolled in four-year colleges full time in October 1972 were in the same status in October 1973. The corresponding percentages for full-time two-year college students and vocational-technical students were 59 and 32 percent, respectively. The lower persistence percentage for two-year college and vocational-technical students could be due to a number of factors: (1) some students might be in a one-year program; (2) their ability level is lower relative to four-year college students; (3) they are less committed to higher education than four-year students; and (4) they are more likely to have financial problems. Further analysis of the data is needed to gain more insight into the factors underlying these low persistence rates.

Seventy-two percent of those working full time in October 1972 were also working full time in October 1973, but 13 percent of those working

full time in October 1972 were going to school in October 1973. What effect do the classification variables have on the correspondence between activity states between these two periods?

1. Relationship of Ability to Activity State Transitions

The highest dropout rate for full-time study across all three types of institutions is, as expected, for the low-ability group. However, it is surprising that the dropout rate from four-year colleges is only 29 percent for this group. It would be interesting to compare the low-ability dropouts with those low-ability students remaining in college. Are the latter more likely to have planned to go to college? Are their goals and expectations more stable? Similar analyses should be done for the middle- and high-aptitude-level dropouts.

Low-ability students who were working full time in October 1972 were most likely to be working full time in October 1973 (76 percent), while high-ability students who were working full time in October 1972 were least likely to be working in October 1973 (59 percent). A substantial percentage (26 percent) of the high-ability groups who were working in October 1972 were going to some type of school full or part time in October 1973.

2. Relationship of SES to Activity State Transitions

SES has about the same relationship as ability to continuance in a four-year college full time. The continuance rates are 84, 78, and 74 percent, respectively, for high-, middle-, and low-SES groups. Like the similar ability group, a considerable proportion of high-SES individuals work their first year out of high school and then go to college (24 percent). The corresponding percentages for middle- and low-SES were 13 and 7 percent, respectively. The middle- and low-SES groups might be working to save money and go to school while the high-SES individuals might just be taking a year off from academics. It will be interesting to look at other characteristics of these groups.

The role of financial problems for the low-SES group dropping out should be fully explored. The policy implications here are fairly obvious if a significant number of these students are dropping out because of financial rather than motivational or achievement problems.

The relationship of SES to continuation in full-time work status was similar to that found for ability. That is, 75 percent of low-SES full-time workers in October 1972 were in the same status in October 1973. Another 18 percent who worked full time in October 1972 were either working part time, looking for work, in the military, or--in the case of females--married and not working.

3. Relationship of Race to Activity State Transitions

The postsecondary school dropout rates for blacks and whites are not substantially different, although higher for blacks. In general, there seemed to be less stability (more transitions) for blacks as contrasted to whites.

4. Relationship of Sex to Activity State Transitions

Both males and females have about the same persistence rates in regard to fulltime study in two- or four-year colleges. However, the female persistence rate in vocational-technical schools is considerably less (25 percent versus 44 percent for males) due probably to the fact that females have more of a tendency to enroll in vocational courses of shorter duration (e.g., cosmetology, stenography, etc.). Females working full time in October 1972 were less likely than males to be working full time in October 1973. This is probably to a large part due to females getting married and dropping out of the labor market.

5. Relationship of High School Programs to Activity State Transitions

Seniors who took an academic high school program had the highest persistence rates in regard to four-year college full-time study (83 percent) while students who were in vocational programs had the lowest persistence rates in four-year colleges (65 percent). The corresponding persistence rate for students who were in a general program was 73 percent. These differences in persistence could be due to at least three factors: difference in ability levels for the enrollees in the three types of programs; differences in skills necessary for the successful completion of college that are acquired in the three programs; and differences in SES distributions among the three programs. One might also speculate on the specific influence of aspirations (including parental aspriations) on both choice of high school curriculum and college persistence.

Respondents from an academic high school program were also more likely to persist in a two-year college full time as compared to participants from vocational or general programs. The same trend was also recognized for students entering vocational-technical programs. We should make these high school program comparisons after adjustment for the effects of SES, ability, and other important factors and see if there still is a relationship between type of program and persistence in college.

Academic students who were working full time in October 1972 were more likely to be doing something other than working full time in October 1973 (39 percent) as contrasted to vocational students, of whom 24 percent of those working full time in October 1972 were in different activity states in October 1973.

In any event, these results have clear-cut implications for high school programs and counseling processes that lead students into particular programs. What are the characteristics of students who are enrolled in a general program and who go to college, contrasted to those enrolled in an academic program and who go to college? What are the characteristics of college dropouts in both of these programs?

6. Relationship of Region to Activity State Transitions

There were significant differences among the four regions in respect to transition matrices. Persistence rates in four-year colleges tended to be highest among respondents from high schools in the Northeast (84 percent) and lowest in the West (77 percent). Work persistence was highest in the South (74 percent) and lowest in the West (66 percent). As noted previously, there are differences among these regions in respect to ability, socioeconomic status, as well as educational and occupational opportunities. These differences among regions could certainly explain many of the differences between the regional transition matrices.

D. Race by Sex Differences in the Educational Attainment Process

In the previous sections, we have examined the movement and persistence of individuals across activity states and the association of four of our classification variables with the transition probabilities. While such data provide rather precise population estimates of these relation-

ships, they do not, as frequently mentioned, allow us to assess easily the relative influence of the factors that appear to be implicated in the attainment process. A preliminary step in this direction is reported here, with specific reference to race and sex differences in the educational attainment process.

The model, as shown in Figure 1, is a simple but basic one. Family background status SES is the only exogenous variable. It is the same composite index used in the previous analysis, based on father's and mother's education, father's occupation, family income, and a household item index, and is categorized into three categories (upper and lower quartiles, with the second and third quartiles collapsed).

Postsecondary education is the primary dependent variable of interest and for the purpose of this analysis consists of three categories: no college or other schooling; vocational-technical enrollment; and academic enrollment. The last category includes all students who were enrolled either in October 1972 or October 1973 in an academic program in either a two- or four-year institution, while the second category includes all other students who had enrolled in a vocational-technical program in either time period.

Aptitude and high school class rank are the "intervening" variables in the model. RTI's composite aptitude scores again are used in this analysis, an index based on four of the six ETS subtests administered during the base year and divided into three categories (upper and lower quartiles, with the second and third quartiles collapsed). Class rank comes from the SRIF and has been collapsed in this analysis to form four quartiles.

We assess the full structural model in Figure 2 using multiple regression or path analysis. This procedure allows us to estimate the direct or independent effects of the different predictor variables in the model. When repeated for each race by sex group, i.e., black males, black females, white males, and white females, it also will enable us to determine how similarly (or differently) the predictor variables operate within and between each group.

Table 1 presents both unstandarized and standardized coefficients for these models. This is done because two different kinds of comparisons are desired. On the one hand, we would like to know whether or not the predictor variables relative to one another function in essentially the same manner in the different groups. For example, earlier research sug-

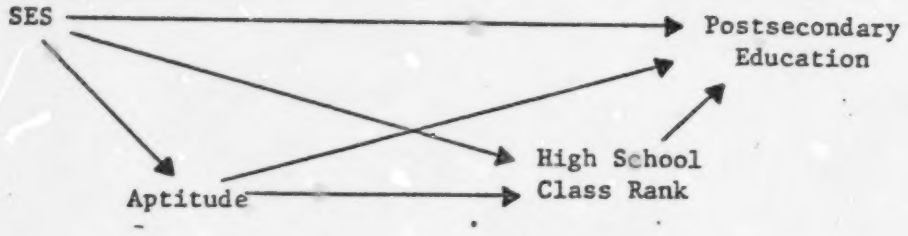

Figure 1. Basic School to Postsecondary Transition Model.

gests that access to college is more directly influenced by SES than by high school grades in the case of the white females. In order to determine if this is also true for males or for blacks, we must examine the standardized coefficients, since the independent variables that we are comparing are measured in different metrics. This then will be our general strategy when comparing the functioning of variables within models.

At the same time, however, it would be quite informative to make direct comparisons regarding the magnitude of the effects of predictor variables across samples. For example, controlling for sex, is the effect of aptitude on postsecondary education as strong for blacks as it is for whites? Since the item variances may differ substantially between subsamples, as they do in this particular illustration, it is more appropriate here to use the unstandardized coefficients or metric values. Our discussion of sex differences from Table 1 begins with comparisons of this kind.

1. Sex Differences

Work already completed with NLS base-year data offers some insights into sex differences. Looking first at the effects of aptitude on class rank and on postsecondary education (the 3rd and 5th rows of Table 2), very little difference is noted between the sexes in the size of the metric values within either the black or white subsamples. The largest difference is among blacks when education is regressed on aptitude. The metric value is somewhat larger for females (.305) than it is for males (.260).

The effects of SES also differ very little across the sexes (the 1st, 2nd, and 4th rows). Among blacks, SES more strongly affects aptitude, class rank, and enrollment in a postsecondary school for females than for males. Among whites, postsecondary

Table 1. Regression Coefficients for Basic Model of Access to Postsecondary School

Dependent variable regressed on each predictor:	METRIC VALUES			
	Black Males	Black Females	White Males	White Females
Aptitude on SES	.227	.251	.319	.299
Class Rank on SES, controlling for Aptitude	-1.889	-3.051	1.218	-0.334
Class Rank on Aptitude, controlling for SES	18.679	19.140	20.463	21.408
Education on SES, controlling for Aptitude and Class Rank	.298	.314	.296	.366
Education on Aptitude, controlling for SES and Class Ranks	.260	.305	.298	.298
Education on Class Rank, controlling for SES and Aptitude	.009	.006	.009	.006
	STANDARD COEFFICIENTS			
Aptitude on SES	.24	.27	.31	.30
Class Rank on SES, controlling for Aptitude	-.04	-.07	.03	-.01
Class Rank on Aptitude, controlling for SES	.40	.39	.54	.55
Education on SES, controlling for Aptitude and Class Rank	.19	.21	.22	.28
Education on Aptitude, controlling for SES and Class Rank	.16	.19	.23	.23
Education on Class Rank, controlling for SES and Aptitude	.26	.18	.25	.19
R^2 for Education	.18	.16	.28	.28

enrollments also depend more on SES for females than for males (.366 and .296, respectively). However, these differences all are quite modest. Finally, the effects of class rank on postsecondary education are somewhat stronger for males than for females within both races.

Comparing the standardized coefficients within groups, we also find few sex differences of any magnitude. For example, in looking at the determinants of high school class rank (i.e., SES versus aptitude), we find that SES has almost no influence on grades for either males or females of equal ability; on the other hand, aptitude has a strong and, within race groups, virtually identical relative effect on grades for males and females.

The only patterns of sex differences of any substantive interest are the differential effects of class rank and SES on who goes to college. Within both races, the effects of SES are more important than the effects of high school class rank for females, while just the opposite holds for males. Thus it appears that females tend to be more disadvantaged (or advantaged) by the influence of family status background than males, while for males access to college depends more directly on one's relative performance (grades) than on family background. We find it especially interesting that this generalization about sex differences holds for blacks as well as whites.

At the bottom of Table 1, the coefficients of determination (R^2) are given for postsecondary education. There are no important sex differences in the amount of variance explained by SES, aptitude, and class rank in these models.

2. Race Differences

An examination of the metric values indicates a few race differences of interest. Although none individually is very large, together they produce a notable difference in the coefficients of determination for education. The model explains significantly less of the variance for blacks than for whites.

For both sexes, aptitude is more closely correlated with SES among whites than among blacks (1st row) and the effects of aptitude on class rank (3rd row) are slightly stronger for whites than for blacks. The direct effect of aptitude on postsecondary schooling also is somewhat stronger for whites, but this is true only among males (5th row). In general, then, aptitude, as measured by stand-

ardized tests, is not quite as strongly associated with the other variables in our model for blacks as it is for whites. As previously noted, high school class rank is only weakly dependent on family background SES when one controls for aptitude.

Completing our inspection of the metric values, we find that the direct influence of SES on postsecondary education is virtually identical for black and white males. Among females, however, the SES effects are somewhat stronger for whites. Finally, the direct influence of high school class rank on postsecondary education is identical between races.

Turning to the within-group comparisons in the lower half of Table 2, there are no race differences of any importance in the manner in which the variables in this model function with respect to one another. For instance, looking only at the predictors of post-secondary schooling, class rank has the strongest direct effect, while SES has the weakest effect for both black and white males, whereas for black and white females just the reverse is true. These then are sex differences, not race differences.

E. Self-Esteem and Locus of Control

Two attitude scales were given relatively high priority in the base-year and follow-up surveys. These are the items measuring "self-concept" and "control of environment," which are modifications of Rosenberg's self-esteem and Rotter's locus of control scales.

Internal consistency checks indicate rather moderate reliabilities for these two scales in both the base-year and first follow-up administrations: about .65 (.657 and .644, respectively) for self-esteem; and about .56 (.576 and .552) for locus of control. The stability of the constructs over time, as measured by the zero-order correlations between the base year and first follow-up, is smaller. These correlations separately for whites and blacks are .405 and .301, respectively, for self-esteem, and .418 and .388, respectively, for locus of control.

While the results have not been striking, past research generally has shown similar forms of these scales to be moderately associated with academic performance and other educational status variables. One of the long-range objectives of the NLS studies is to address the two-fold question: (a) To what extent, if any, do these personality traits predict postsecondary school outcomes, in the aggregate and for specific

subpopulations? and (b) To what extent can subsequent changes in self-esteem or locus of control be attributed to postsecondary school experiences? As a preliminary step toward such an analysis, a high school model has been examined in an attempt first to identify the principal determinants of self-esteem and locus of control using the base-year measures. This is an essential step considering the likelihood that these traits are intercorrelated with other predictors of school outcomes to an extent that could render the observed effects on self-esteem and locus of control as largely spurious. Any such correlates that can be identified should be statistically controlled when later dealing with the above questions.

The model we employed for this purpose is presented in Figure 2. This includes SES and ability as exogenous variables, followed by school curriculum, participation in extracurricular activities, school grades (class standing) and college plans as process or moderator variables. Locus of control and self-esteem are the outcome variables, with the latter placed as dependent on the former in our regression model. This model was estimated separately for white males, white females, black males, and black females. As in our analysis in Section III-E, both standardized and unstandardized coefficients are reported.

First, the results in Table 2 show, as we would have hypothesized, moderately positive effects of locus of control on self-esteem for whites, but not for blacks. Actually, the association between locus of control and self-esteem for blacks is slightly negative, although the path coefficients are not statistically significant (i.e., twice their standard errors). These findings are generally consistent with past research.

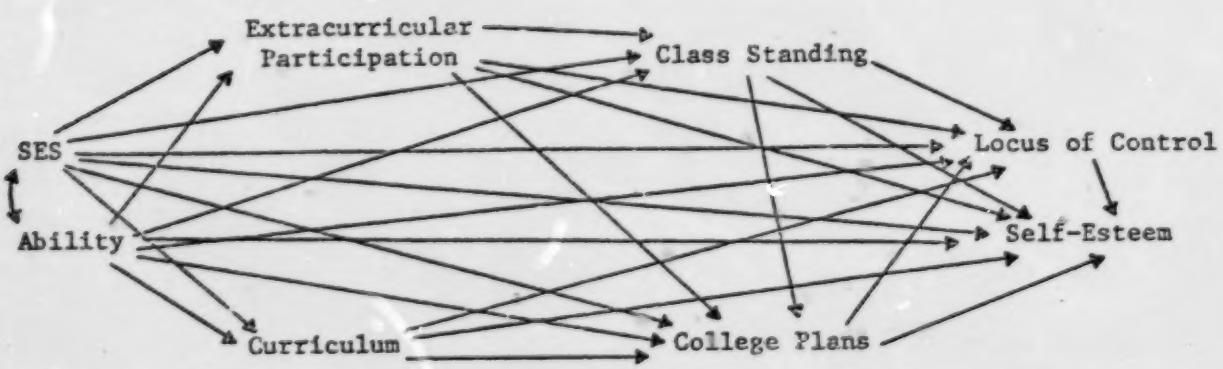

Figure 2. Path Model testing for the Determinants of Locus of Control and Self-Esteem

Table 2. Standardized and Unstandardized Regression Coefficients for Preliminary Model of the Determinants of Locus of Control and Self-Esteem.

I.V.'s	White Males		White Females		Black Males		Black Females	
	STAND	UNSTAND.	STAND	UNSTAND.	STAND	UNSTAND.	STAND	UNSTAND.
College-Preparatory Curriculum (Dependent Variable):								
Ability	.368	(.258)	.364	(.261)	.292	(.250)	.277	(.333)
SES	.159	(.113)	.207	(.147)	.146	(.116)	.123	(.153)
Extracurricular Participation (Dependent Variable):								
Ability	.194	(.794)	.231	(1.26)	.066*	(.365)	.193	(1.21)
SES	.101	(.419)	.078	(.420)	.086*	(.440)	.123	(.747)
Class Standing (Dependent Variable):								
Ability	.426	(.844)	.440	(.846)	.368	(.832)	.300	(.676)
SES	.055*	(.027)	-.018*	(-.033)	-.077*	(-.161)	-.156	(-.339)
Extra. Part.	.271	(.131)	.279	(.098)	.230	(.093)	.264	(.094)
College Plans (Dependent Variables):								
Ability	.129	(.088)	.139	(.096)	.181	(.154)	.174	(.145)
SES	.130	(.091)	.184	(.125)	.099	(.078)	.127	(.102)
Extra. Part.	.106	(.018)	.136	(.017)	.056*	(.008)	.127	(.017)
Curriculum	.283	(.277)	.318	(.306)	.227	(.227)	.317	(.317)
Class Standing	.208	(.070)	.096	(.034)	.137	(.051)	.106	(.039)
Locus of Control (Dependent Variable):								
Ability	.215	(1.57)	.216	(1.60)	.323	(3.17)	.255	(2.51)
SES	.041*	(.301)	.030*	(.217)	.079*	(.783)	.118	(1.15)
Extra. Part.	.073	(.125)	.035*	(.044)	-.010*	(-.019)	-.010*	(-.028)
Curriculum	-.056*	(-.573)	-.084	(-.851)	-.079*	(-.959)	-.088*	(-1.07)
Class Standing	.082	(.302)	.097	(.385)	.171	(.771)	.222	(1.01)
College Plans	.022*	(.234)	-.018*	(-.183)	.096*	(1.16)	-.040*	(-.481)
Self-Esteem (Dependent Variable):								
Ability	-.065	(-.346)	-.025*	(-.134)	.118	(.786)	.026*	(.160)
SES	.048*	(.259)	.045*	(.231)	.107	(.719)	-.032*	(-.192)
Extra. Part.	.063	(.078)	.070	(.064)	.054*	(.066)	.022*	(.022)
Curriculum	.007*	(.054)	.032*	(.234)	-.091*	(-.151)	.129	(1.00)
Class Standing	.102	(.274)	.084	(.240)	.032*	(.097)	-.020*	(-.056)
College Plans	.005*	(.037)	.048*	(.353)	.010*	(.086)	.040*	(.308)
Locus of Control	.127	(.092)	.153	(.109)	-.099*	(-.067)	-.066*	(-.041)

*Coefficients not statistically significant, i.e., less than twice their standard error.

Second, we find that the most important predictor of locus of control for all race by sex groups is ability, net of all other variables, with class standing second in importance. Aside from the effects of locus of control, the strongest direct effect on self-esteem is class standing, but this holds true only for whites. For blacks, grades have virtually no influence on self-esteem, whereas some other factors, like ability are more important.

One final point of interest in this analysis is the contrast between the black and white males in regard to the direct effects of ability on self-esteem. These effects for white males are slightly negative. In other words, controlling for grade performance (and other variables in the model), high ability tends to lead to low self-esteem. Our interpretation of these results is similar to the well-documented "frog-pond" effects, that is, where competitive academic environments generally depress one's relative performance. In this case, white males whose ability exceeds their academic performance, meaning that they are not working up to their capacities, tend to have low self-esteem. In contrast, the effects of ability on self-esteem are positive for black males even when performance is controlled, and insignificant for both black and white females.

Analysis currently in progress will extend this model in order to assess the consequences of these traits on postsecondary school outcomes, including changes in self-esteem and locus of control based on the 1973 measures. In performing this analysis, it will be important to control for several of the determinants examined above.

III. SIGNIFICANT QUESTIONS FOR CONTINUING STUDY

At this point in time (September 1975) analyses of FFU data contracted to RTI are being completed; analyses of SFU data will begin shortly. The TFU to be conducted in the fall of 1976 is now in the planning stages. Some of the questions believed to be significant in guiding the continuing work include:

1. How successful have the graduates of various vocational and technical postsecondary programs been in utilizing their training?

2. How do these students compare with those who went to work immediately upon graduation from high school, especially those whose technical training in high school may have been comparable to that received by those who later attended proprietary or community colleges?
3. How much and what kind of job mobility have these students had, particularly those who have been in the labor force for a number of years?
4. What kinds of problems have the postsecondary vocational and technical students had in carrying any financial burdens that may have been incurred from their training?
5. For students who entered two-year institutions with college aspirations, what factors determined who ultimately transferred to a four-year institution and who either dropped out or took terminal vocational degrees?
6. Who especially are the latter? Were they "college material" to begin with or were their expectations unrealistic? Did they have an adequate opportunity to succeed or were they handicapped by poor high school preparation or by other social conditions?
7. How have the transfers from junior colleges fared relative to their counterparts who had and took the opportunity to begin their college careers at four-year institutions?
8. How do the college dropouts, with one, two, or three years of academic training, fare relative to respondents who entered the work force immediately upon leaving high school and relative to those who had some postsecondary vocational or technical training instead?
9. What are the primary causes of dropping out and, of equal significance, what factors are associated with who returns to college after dropping?
10. In addition to the possibility of a temporary interruption, what distinguishes those students who graduated in 1976 on schedule from those who are still enrolled in undergraduate programs?

11. What are the causes and consequences of changing one's field of study in midstream? (Should curriculum changes be viewed as a problem reflecting poor career training and planning or as a natural and positive event of a free society in which individuals are given ample opportunity to test their talents and follow their interests?)
12. How realistic were the aspirations of the dropouts and what are some of the social, economic, and personal consequences of "structured" failure, if any? (Considering the large numbers who are invited to compete in college and who fail, certainly it would be appropriate for society to ask if the contest, in balance, was worth it.)
13. What special problems did students have who would have been predicted to succeed but didn't? How small or large is this group, and by what criteria is success determined?
14. What are the primary factors which lead some students, after graduation from college, into postgraduate programs and into different types of programs?
15. What conditions appear most relevant for students entering the labor force for the first time in 1976 upon graduation from college in terms of being able to utilize their training?
16. What are the effects of marriage and children on either continuing education or employment, especially for women relative to men?
17. In what manner, personally, socially, or economically, do women who postpone marriage or who are able to successfully combine marriage with continuing education and a career differ from those who get married and drop out of college and/or the labor force?
18. What are the long-term effects of high school counseling, curriculum, extracurricular activities, and performance on continuing education and career development?
19. How might the answers to all of the above questions differ by class background, by sex, by race, by region, or by various combinations of these variables?

This paper has provided some evidence as to the stage of progress, nature of findings and questions believed important in guiding future work on the National Longitudinal Study--as attention is being turned to analyses of data from the Second Follow-Up, and to the formation of the contents for the Third Follow-Up. Comments and suggestions are invited, and may be directed to the NLS project director at RTI, Dr. J. P. Bailey, Jr.